

What is claimed is:

1. A composition for variably releasing fragrances comprising in combination:

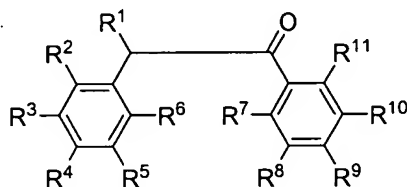
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(a) a first organic agent that undergoes an intramolecular photochemical rearrangement that is induced by sunlight radiation to release a fragrance or form a second agent that is a fragrance; and

10 (b) a carrier for topical administration to skin or hair or administration to articles of clothing and other textiles via washing or spraying methods.

2. A photoresponsive fragrance composition comprising:

15 (a) a compound having the formula



wherein

20 R₁ is substituted ester (--OC(O)R₁₂), substituted phosphate (--OP(O)(R₁₉)(OR₂₀), substituted thiol (--S-R₁₂), substituted amine (--NH-R₁₂) or an other substituted chemical group covalently linked to a fragrance or fragrance molecule;

R₂, R₃, R₄, R₅, and R₆ are independently hydrogen, hydroxy, alkyl, aryl, alkoxy or substituted alkoxy;

25 R₇, R₈, R₉, R₁₀, and R₁₁ are independently hydrogen, alkyl, aryl, alkoxy or substituted alkoxy;

R₁₂, is a fragrance or molecule that imparts a fragrance;

R₁₉ is a hydrogen and R₂₀ is a fragrance or molecule that imparts a fragrance or R₁₉ is a fragrance or molecule that imparts a fragrance and R₂₀ is a hydrogen

wherein at least one of R₂ or R₆ is hydrogen;

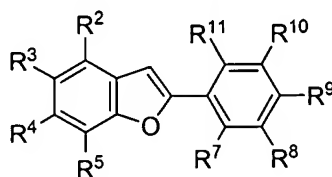
5 wherein at least one of R₂, R₃, R₄, R₅, or R₆ is hydroxy or substituted alkoxy; and

(B) a carrier for topical administration to skin or hair or direct administration to articles of clothing or other textiles.

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3. A photoresponsive fragrance composition comprising:

(A) a sunlight absorbing compound having the formula



wherein

15 R₂, R₃, R₄, and R₅ are independently hydrogen, hydroxy (C₁₋₂₀)alkyl, (C₅₋₁₂)aryl, (C₁₋₂₀)alkoxy or substituted (C₁₋₂₀)alkoxy;

R₇, R₈, R₉, R₁₀, and R₁₁ are independently hydrogen, (C₁₋₂₀)alkyl, (C₅₋₁₂) aryl, (C₁₋₂₀)alkoxy or substituted (C₁₋₂₀)alkoxy;

wherein at least one of R₂, R₃, R₄, or R₅ is hydroxy or substituted (C₁₋₂₀)alkoxy;

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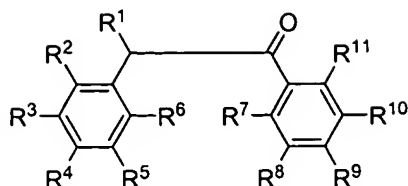
(B) a carrier for topical administration to skin or hair, or direct administration to articles of clothing or other textiles;

(C) a fragrance or fragrance molecule.

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4. A composition useful for releasing fragrances of a desired scent comprising:

(A) a compound having the formula



wherein

R₁ is substituted ester (--OC(O)R₁₂), substituted phosphate (--OP(O)(R₁₉)(OR₂₀), substituted thiol (--S-R₁₂), substituted amine (--NH-R₁₂) or an other substituted chemical group covalently linked to a fragrance or fragrance molecule

R₂, R₃, R₄, R₅, and R₆ are independently hydrogen, hydroxy, alkyl, aryl, alkoxy, or substituted alkoxy;

R₇, R₈, R₉, R₁₀, and R₁₁ are independently hydrogen, alkyl, aryl, alkoxy, or substituted alkoxy;

R₁₂ is a fragrance or fragrance molecule;

R₁₉ is hydrogen or a fragrance molecule; and

R₂₀ is hydrogen or a fragrance molecule wherein at least one of R₂ or R₆ is hydrogen; wherein at least one of R₂, R₃, R₄, R₅ or R₆ is hydroxy or substituted alkoxy; and

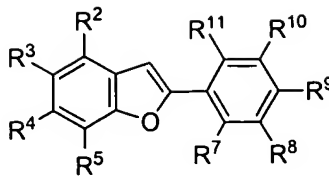
(B) a carrier for topical administration to skin or hair or direct administration to articles of clothing and other textiles.

5. The composition according to claim 4 further comprising an auxiliary fragrance agent having a different fragrance than the photoreleased fragrance.

6. The composition according to claim 4 further comprising a photo rearranged product having a desirable fragrance.

7. A composition useful for releasing a desirable fragrance comprising:

(A) an sunlight absorbing compound having the formula



wherein

R₂, R₃, R₄, and R₅ are independently hydrogen, hydroxy, (C₁₋₂₀)alkyl, (C₅₋₁₂)aryl, (C₁₋₂₀)alkoxy, or substituted (C₁₋₂₀)alkoxy;

- 5 R₇, R₈, R₉, R₁₀, and R₁₁, are independently is hydrogen, (C₁₋₂₀)alkyl, (C₅₋₁₂)aryl, (C₁₋₂₀)alkoxy, or substituted (C₁₋₂₀)alkoxy;

wherein at least one of R₂, R₃, R₄, or R₅ is hydroxy or substituted (C₁₋₂₀)alkoxy and

(B) a carrier for topical administration or direct administration to articles of

- 10 clothing and other textiles or via routine washing.

8. The composition according to claim 7 wherein

R₂ is hydrogen;

R₃ is hydrogen, (C₁₋₂₀)alkoxy, or substituted (C₁₋₂₀)alkoxy;

- 15 R₄ is hydrogen;

R₅ is (C₁₋₂₀)alkoxy or substituted (C₁₋₂₀)alkoxy;

R₇ is hydrogen;

R₈ is hydrogen;

R₉ is hydrogen;

- 20 R₁₀ is hydrogen; and

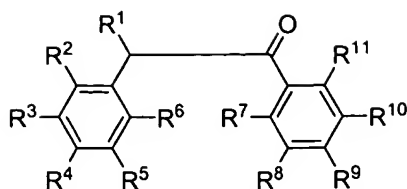
R₁₁ is hydrogen.

9. The composition according to claim 7 further comprising an auxiliary fragrance agent having a different fragrance than compound (A).

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10. A photoresponsive fragrance composition comprising:

(A) a compound having the formula



wherein

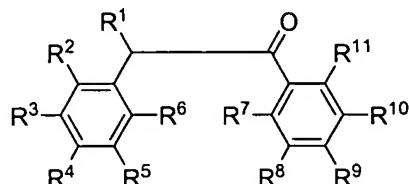
- 5 R_1 is substituted ester ($--OC(O)R_{12}$), substituted phosphate ($--OP(O)(R_{19})(OR_{20})$),
 substituted thiol ($--S-R_{12}$), substituted amine ($--NH-R_{12}$) or an other
 substituted chemical group covalently linked to a fragrance or fragrance
 molecule.;
 R_2 is hydrogen, hydroxy, (C_{1-20}) alkyl, (C_{5-12}) aryl, (C_{1-20}) alkoxy or substituted (C_{1-20}) alkoxy;
 10 R_3 is hydrogen, hydroxy, (C_{1-20}) alkyl, (C_{5-12}) aryl, (C_{1-20}) alkoxy or substituted (C_{1-20}) alkoxy;
 R_4 is hydrogen, hydroxy, (C_{1-20}) alkyl, (C_{5-12}) aryl, (C_{1-20}) alkoxy or substituted (C_{1-20}) alkoxy;
 R_5 is hydrogen, hydroxy, (C_{1-20}) alkyl, (C_{5-12}) aryl, (C_{1-20}) alkoxy or substituted (C_{1-20}) alkoxy;
 15 R_6 is hydrogen, hydroxy, (C_{1-20}) alkyl, (C_{5-12}) aryl, (C_{1-20}) alkoxy or substituted (C_{1-20}) alkoxy;
 R_7 is hydrogen, (C_{1-20}) alkyl, (C_{5-12}) aryl, (C_{1-20}) alkoxy or substituted (C_{1-20}) alkoxy;
 R_8 is hydrogen, (C_{1-20}) alkyl, (C_{5-12}) aryl, (C_{1-20}) alkoxy or substituted (C_{1-20}) alkoxy;
 20 R_9 is hydrogen, (C_{1-20}) alkyl, (C_{5-12}) aryl, (C_{1-20}) alkoxy or substituted (C_{1-20}) alkoxy;
 R_{10} is hydrogen, (C_{1-20}) alkyl, (C_{5-12}) aryl, (C_{1-20}) alkoxy or substituted (C_{1-20}) alkoxy;
 R_{11} is hydrogen, (C_{1-20}) alkyl, (C_{5-12}) aryl, (C_{1-20}) alkoxy or substituted (C_{1-20}) alkoxy;
 R_{12} , is a fragrance or molecule that imparts a fragrance;
 R_{19} is hydrogen or a fragrance molecule;
 25 R_{20} is hydrogen or a fragrance molecule;
 wherein at least one of R_2 or R_6 is hydrogen;
 wherein at least one of R_2 , R_3 , R_4 , R_5 , or R_6 is hydroxy or substituted (C_{1-20}) alkoxy;
 and

(B) a carrier for topical administration or direct administration to articles of clothing and other textiles or via routine washing.

11. A composition useful releasing a desired fragrance comprising:

5

(A) a compound having the formula



wherein

- R₁ is substituted ester (--OC(O)R₁₂), substituted phosphate (--OP(O)(R₁₉)(OR₂₀),
10 substituted thiol (--S-R₁₂), substituted amine (--NH-R₁₂) or an other substituted
chemical group covalently linked to a fragrance or fragrance molecule.;
- R₂ is hydrogen, hydroxy, (C₁₋₂₀)alkyl, (C₅₋₁₂)aryl, (C₁₋₂₀)alkoxy, or substituted (C₁₋₂₀)alkoxy;
- R₃ is hydrogen, hydroxy, (C₁₋₂₀)alkyl, (C₅₋₁₂)aryl, (C₁₋₂₀)alkoxy, or substituted (C₁₋₂₀)alkoxy;
15
- R₄ is hydrogen, hydroxy, (C₁₋₂₀)alkyl, (C₅₋₁₂)aryl, (C₁₋₂₀)alkoxy, or substituted (C₁₋₂₀)alkoxy;
- R₅ is hydrogen, hydroxy, (C₁₋₂₀)alkyl, (C₅₋₁₂)aryl, (C₁₋₂₀)alkoxy, or substituted (C₁₋₂₀)alkoxy;
- 20 R₆ is hydrogen, hydroxy, (C₁₋₂₀)alkyl, (C₅₋₁₂)aryl, (C₁₋₂₀)alkoxy, or substituted (C₁₋₂₀)alkoxy;
- R₇ is hydrogen, (C₁₋₂₀)alkyl, (C₅₋₁₂)aryl, (C₁₋₂₀)alkoxy, or substituted (C₁₋₂₀)alkoxy;
- R₈ is hydrogen, (C₁₋₂₀)alkyl, (C₅₋₁₂)aryl, (C₁₋₂₀)alkoxy, or substituted (C₁₋₂₀)alkoxy;
- R₉ is hydrogen, (C₁₋₂₀)alkyl, (C₅₋₁₂)aryl, (C₁₋₂₀)alkoxy, or substituted (C₁₋₂₀)alkoxy;
- 25 R₁₀ is hydrogen, (C₁₋₂₀)alkyl, (C₅₋₁₂)aryl, (C₁₋₂₀)alkoxy, or substituted (C₁₋₂₀)alkoxy;
- R₁₁ is hydrogen, (C₁₋₂₀)alkyl, (C₅₋₁₂)aryl, (C₁₋₂₀)alkoxy, or substituted (C₁₋₂₀)alkoxy;
- R₁₂ is a fragrance or a molecule that imparts a fragrance;

R₁₉ is hydrogen or a fragrance molecule

R₂₀ is hydrogen or a fragrance molecule

wherein at least one of R₂ or R₆ is hydrogen;

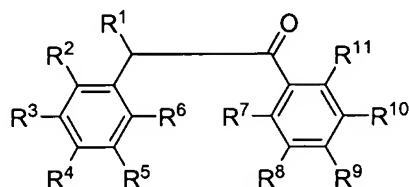
wherein at least one of R₂, R₃, R₄, R₅ or R₆ is hydroxy or substituted (C₁₋₂₀)alkoxy;

5 and

(B) a carrier for topical administration or direct administration to articles of clothing and other textiles or via routine washing.

10 12. A photoresponsive fragrance composition comprising:

(A) a compound having the formula



15 wherein

R₁ is a fragrance molecule; R₂ is hydrogen, hydroxy, alkyl, aryl, alkoxy or substituted alkoxy;

R₃, R₄, R₅, and R₆ are independently hydrogen, hydroxy, alkyl, aryl, alkoxy or substituted alkoxy;

20 R₇, R₈, R₉, R₁₀, and R₁₁ are independently hydrogen, alkyl, aryl, alkoxy or substituted alkoxy;

wherein at least one of R₂ or R₆ is hydrogen;

wherein at least one of R₂, R₃, R₄, R₅, or R₆ is hydroxy or substituted alkoxy; and

25 (B) a carrier for topical administration or direct administration to article of clothing and other textiles or via routine washing.

13. A method of controlling the release of a fragrance by incorporating the compositions of any one of claims 1 to 12 into clothing or textiles by spraying

the composition onto the clothing or textiles or washing the clothing or textiles in a solution of the composition.

14. A method according to claim 13, wherein the composition is
5 sprayed onto the clothing or textiles.

15. A method according to claim 13, wherein the composition is incorporated into the clothing or textiles via washing.

16. A composition according to any one of claims 1, 2, 3, 4, 5, or 6
10 wherein the composition is formulated for spraying onto the skin.

17. A composition according to any one of claims 1, 2, 3, 4, 5, or 6
15 wherein the composition is formulated for rubbing onto the skin.

18. A method of controlling the release of a fragrance by applying the compositions of any one of claims 1 to 12 onto the skin or hair of a mammal.

19. A method according to claim 16, wherein the mammal is a human.
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20. A method according to claim 16, wherein the mammal is a companion animal.

21. A composition according to any one of claims 1, 2, 4, 5, 6, 10, 11,
25 12, 16, or 17, wherein the compound is of the formula:

